From wang!elf.wang.com!ucsd.edu!info-hams-relay Sat Mar 16 04:07:31 1991 remote
from tosspot
Received: by tosspot (1.63/waf)
     via UUCP; Sat, 16 Mar 91 08:26:52 EST
     for lee
Received: from somewhere by elf.wang.com id aa29325; Sat, 16 Mar 91 4:07:30 GMT
Received: from ucsd.edu by news.UU.NET with SMTP
     (5.61/UUNET-shadow-mx) id AA19544; Fri, 15 Mar 91 21:35:13 -0500
Received: by ucsd.edu; id AA09534
     sendmail 5.64/UCSD-2.1-sun
     Fri, 15 Mar 91 17:16:01 -0800 for nixbur!schroeder.pad
Received: by ucsd.edu; id AA09452
     sendmail 5.64/UCSD-2.1-sun
     Fri, 15 Mar 91 17:15:21 -0800 for /usr/lib/sendmail -oc -odb -oQ/var/spool/
lqueue -oi -finfo-hams-relay info-hams-list
Message-Id: <9103160115.AA09452@ucsd.edu>
Date: Fri, 15 Mar 91 17:15:19 PST
From: Info-Hams Mailing List and Newsgroup <info-hams-relay@ucsd.edu>
Reply-To: Info-Hams@ucsd.edu
Subject: Info-Hams Digest V91 #210
To: Info-Hams@ucsd.edu

Info-Hams Digest Fri, 15 Mar 91 Volume 91 : Issue 210

Today's Topics:

Alinco 590
DX Bulletin
Fun with Balloons and long wires!
Ham Stacks Sighted!
MAJOR SOLAR FLARE ALERT - STORM WARNING UPDATE - 14 MARCH
NASA Prediction Bulletins
TH-77A hum in TX audio

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

Date: Fri, 15 Mar 91 08:21:43 EST
From: jay@zen.cac.stratus.com (Jay Appell)

Subject: Alinco 590
To: Info-Hams@zen.cac.stratus.com

The 590 manual is just being finished. It will probably take until
the end of next week before it is in the mail to ALINCO. If you
care to reach me , call (508)-460-2548 7:30am-4:00pm est.

For those who have mailed me with a SASE for a schematic, I just
received a reasonable copy and will get it off to you in the next
few days. I will include the manual into the info-hams newsletter
for later reference.

Jay (KA1SNA)

Date: Fri, 15 Mar 91 08:58:35 EST
From: skitch@NADC.NADC.NAVY.MIL (M. Squicciarini)
Subject: DX Bulletin
To: info-hams@ucsd.edu

The first posting was cut in half and ended up at the bottom of the issue.
I will repost the bulletin and I have removed the line that caused the
     problem.

The Ohio/Penn Dx Packet Cluster Network
DX Bulletin No. 001
Provided by BARF-80 BBS Cleveland, Ohio
Online at 216-237-8208 2400/1200/300 8/N/1

Thanks to Tedd Mirgliotta, KB8NW, and the Northern Ohio Amateur Radio
Society, Northern Ohio DX Association and K8BL, WB8LFO, KW3N, W8QWI
AND WB3LHD for the following DX information.

4K1, SOUTH SANDWICH. Confusion still continues on the legitimacy of
4K1ZI. The operator is with a scientific team on the island as stated
by both PY2PE and UA2AO. The puzzling part is no one can find the
address for his QSL manager, not even USSR operators. WFWL!!!

9K2, KUWAIT. Now that the Gulf War is over, a station signing 9K2SH
has become active on the PHO Family Hour Net on 14226.5 at 2200Z.
Also it has been reported that 9K2/NE2X showed up on the 14160 DX net
around 2245Z.

D6, COMOROS. This country has been very active all because of some
JA operators. The stations D68YH, D68TS, D68YD and D68KN will be
active from March 8-12 and then make a stint to FH (Mayotte) between

March 12-20 with a return to D6 on March 20-21. These stations have been heard around 14002, 14093 (RTTY), 18075, 24910 and 28452 KHz.

FR/G & FR/T, TROMELIN & GLORIOSO. Rumors of Jacques, FR5ZU, stating he will be going to these to islands have surfaced again. Word has it he will make two trips to each island sometime this year.

ET, ETHIOPIA. JACK, ET2A, continues to be active mostly on list type operations, but with some QRM. Check the following frequencies for nets and sometimes going it alone: 21295 to 21306 or 21248 KHz from 1500-2000Z or 28568. In the late evening 14256 and 14222 KHz on Jim Smith's net, VK9NS, around 0500Z. Operation will come to an end in the middle of April. QSL via WB2WOW. Late breaking news has John, PA3CXC, maybe visiting Jack for a week to operate. This is good news for all who need ET.

VP2E, ANGUILLA. KO8O, KB8WC and K8BL will return to Anguilla, VP2E, to operate again this year from May 1 to 7. This is 2/3 of the group that operated as VP2EOH last year and they hope to renew the VP2EOH call (KYFC). Operation will be about 2/3 SSB and 1/3 CW and will concentrate in the Gen/Tech portions of the bands. If an antenna situation allows for WARC operation they will operate on those bands. QSL via K8BL direct or via BURO. All Non-SASE will be returned via the BURO.

S2, BANGLADESH. Jim Smith, VK9NS, has postponed his trip to Bangladesh for one to three weeks or even as late as May, because of the political unrest. It seems the elections in Bangladesh were very close. Keep listening to the HIDXA net for further updates.

T31, CENTRAL KIRIBATI. DL1VU, now signing T31AF, has been active on 24895 at 0040Z. He is mainly a CW op, so also check 25 kHz from the bottom of 10, 15 and 20 meters. QSL via DL2MDZ.

XQ, SAN FELIX. John continues to be active and pushing this rare one down the want list. XQ0X can be found on 21195 KHz at 0420Z and 28485 KHz between 1400 and 1530Z. John has also been found on 18130 KHz at 0411Z and 24950 KHz at 0414Z. QSL via CE3ESS.

XZ, BURMA. The Burma pirate continues to be active on CW. The station signing XZ9A claims his QSL manager is JA8IXM, but Masaaki knows nothing about this operation.

17 AND 12 METERS. These two bands continue to be very active with variety of DX station thru out the world. Remember these bands count for DXCC credit. Look for:

3B8CF	18077/0258Z	CO6CG	24905/2242Z

3D2QB	18087/0412Z	FO0IGS	24895/0011Z
4S7NE	18070/0115Z	HK0BKX	24899/1346Z
5W1JC	18074/0715Z	NH6YG/KH3	24995/2239Z
D44BS	18157/0426Z	T31AF	24895/0040Z
FK0BJ	18074/0444Z	TK5BF	24939/1700Z
HF0POL	18071/0308Z	VQ9AY	24940/1706Z
ZL9DX	18135/0456Z	ZL9DX	24950/0044Z

REMINDER. The 80-meter Novice band will be moved on March 16,
to 3675-3725 KHZ. Also higher-class licensees should remember
that their power limit in this range is also 200 watts output.

SAD NOTE. As members of the NOARS, NODXA and BARF Club were in the
process of signing a Get Well card for Bill, ZS5BK, we learned he
became a silent key. Bill had an unfortunate accident falling off
his tower. You may remember Bill from his 7P8 Dxpedition. He will
be missed on the air.

Good Luck on DX de KB8NW

73 -- marty -- nr3z skitch@nadc.navy.mil

Date: 15 Mar 91 14:28:19 GMT
From: uokmax!skaggs@apple.com (Gary Skaggs)
Subject: Fun with Balloons and long wires!
To: info-hams@ucsd.edu

In article <19630@brahms.udel.edu> moyer@brahms.udel.edu (Eric Moyer) writes:
>
> I'm with the University of Delaware ARA and we're thinking about putting
>a huge long wire antenna onto the end of a balloon and floating it up
>above the shack. We'll probably use good 'ol 22 gauge magnet wire, so
>the weight won't be all that great, but I haven't calculated it yet. I'd

Lots of good stuff deleted...

Eric, for field day a few years ago, our club used 500 ft. of insulated, number
20 stainless steel wire (I know, I know, but we had it, OK?) and 5 ft.
diameter when inflated advertising balloons. One shot in the morning and
a brief top-up during the heat of the day kept these in the air through
the entire field day period. Signal reports were great. Winds were
mercifully light that year, so the slope was not bad and we even had a
light on it at night. Don't limit yourself artificially. If you want
to try a long vertical (remember odd take off angles!) DO IT!

73 de Gary ..._._

>
>   Eric P. Moyer   /----- You are a fluke of the universe. ---------/
> moyer@brahms.udel.edu   /   You have no right to be here.   /
>   Into the night as....   /   Whether you can hear it or not,   /
> KA3YED on 28.460 MHz   /--- The universe is laughing behind your back. -/

Gary Skaggs - WB5ULK   skaggs@nssl.gcn.uoknor.edu DOC/NOAA/ERL/NSSL
     "Listen, I'm a politician. That means I'm a cheat and a liar, and
       when I'm not kissin' babies, I'm stealin' their lollipops..."
          Jeffery Pelt, The Hunt for Red October.

Date: 15 Mar 91 14:20:36 GMT
From: uokmax!skaggs@apple.com (Gary Skaggs)
Subject: Ham Stacks Sighted!
To: info-hams@ucsd.edu

I downloaded these from apple.apple.com (thanks!) but I do not have the
BinHex program to decode/uncrunch them. Can anyone direct me to a version
of that runable on a Sun?

73, Gary.

Gary Skaggs - WB5ULK   skaggs@nssl.gcn.uoknor.edu DOC/NOAA/ERL/NSSL
     "Listen, I'm a politician. That means I'm a cheat and a liar, and
       when I'm not kissin' babies, I'm stealin' their lollipops..."
          Jeffery Pelt, The Hunt for Red October.

Date: Thu, 14 Mar 1991 20:10:47 -0500
From: oler@HG.ULeth.CA (CARY OLER)
Subject: MAJOR SOLAR FLARE ALERT - STORM WARNING UPDATE - 14 MARCH
To: info-hams@ucsd.edu

                        -- MAJOR SOLAR FLARE ALERT --

                               MARCH 14, 1991

                            Flare Event Summary
                          Potential Impact Assessment

MAJOR ENERGETIC EVENT SUMMARY

Another major X-class flare erupted from Region 6545 at a location of S10E25. The event began at 18:12 UT, peaked at 18:14 UT and ended at 18:31 UT on 14 March. The flare reached a class X1.8/1B rating and was associated with a very rich radio spectrum. A strong Type IV sweep was observed, but an associated Type II sweep was absent. A strong SID/SWF was also observed at the time of this flare. Frequencies to near 30 MHz were affected. A Tenflare of 870 flux units was observed together with a very strong 245 MHz radio burst measured at 67,000 s.f.u. This flare was a short-duration flare considering the x-ray intensity that was achieved.

Region 6545 is beginning to show signs of stabilization. Flare output has decreased over the last several days, although a strong delta configuration with fairly high shear exists. Major flaring is still possible from this region (if not expected).

Region 6538 is not expected to produce any further major flaring. Some minor M-class flaring is possible. This region is still dormant and is decaying. The primary flare producer of concern is Region 6545.

POTENTIAL TERRESTRIAL IMPACT FORECAST

Considering only the latest flare, there is a moderate chance that minor storming could materialize (near 60%). Any impacts from this flare will likely be observed on the 16th if this flare did indeed produced a coronal mass ejection.

A POTENTIAL MAJOR GEOMAGNETIC STORM WARNING remains in effect for 15 and 16 March. The LOW LATITUDE AURORAL ACTIVITY WARNING also remains in effect for 15 and 16 March. Please note that these days are in reference to UT time. Hence, for U.S. observers, 15 March begins on the evening of 14 March. Please note this when planning observations or other activities. A POTENTIAL MAGNETIC INDUCTION WARNING remains in effect for 15 and 16 March. The POTENTIAL SATELLITE PROTON WARNING and the POTENTIAL PCA ACTIVITY WARNING remain in effect for 15 and 16 March. The satellite proton enhancement is still present. Protons could pass event thresholds with the impact of the interplanetary shock. However, no significant shock-induced proton activity is expected unless further major proton flaring occurs.

Minor geomagnetic storming is still expected for the middle latitudes on 15 March. High latitudes could witness major to severe storming on 15 and 16 March. Magnetic storming is expected to increase to possibly major storm levels on 16 March for middle latitudes. Geomagnetic storming could continue through 17 March if this latest flare produces a terrestrial

impact (which is possible).

A brief SSC alert will be posted when the interplanetary shock arrives (provided it arrives during manned observing hours).

** End of Alert **

Date: Fri, 15 Mar 91 20:11:08 -0500
From: TS Kelso <tkelso@blackbird.afit.af.mil>
Subject: NASA Prediction Bulletins
To: info-hams@wsmr-simtel20.army.mil

The most current orbital elements from the NASA Prediction Bulletins are carried on the Celestial BBS, (513) 427-0674, and are updated several times weekly. Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current of these elements are uploaded weekly to sci.space. This week's elements are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

- Current NASA Prediction Bulletins #822 -
Alouette 1
1 00424U 62B-A 1 91 66.23840038 .00000427 00000-0 49985-3 0 3906
2 00424 80.4668 26.7162 0022623 319.8178 40.1269 13.67474612418646
ATS 3
1 03029U 67111 A 91 71.87304150 -.00000075 00000-0 99999-4 0 5107
2 03029 13.5343 18.9267 0020987 224.8004 135.1964 1.00272554 85484
Cosmos 398
1 04966U 71 16 A 91 73.86348417 .00077710 19412-4 41017-3 0 4399
2 04966 51.5296 256.5637 2084707 315.0285 29.9106 11.46280366622106
Starlette
1 07646U 75010 A 91 69.72668461 -.00000066 00000-0 -43172-5 0 1999
2 07646 49.8256 186.7678 0206126 351.3539   8.3827 13.82150684812645
LAGEOS
1 08820U 76039 A 91 70.09688754 .00000005 00000-0 99999-4 0 2040
2 08820 109.8388 86.5667 0044323 182.0308 178.0297 6.38664145 90986
GOES 2
1 10061U 77048 A 91 71.86112894 -.00000259 00000-0 99999-4 0 5656
2 10061   8.6953 60.4366 0002885 305.7283 54.3770 1.00266926 51708
IUE
1 10637U 78012 A 91 71.98669045 -.00000181 00000-0 79862-4 0 2125
2 10637 32.7249 114.5447 1407592   0.7162 359.6289 1.00295345 9163
GPS-0001
1 10684U 78020 A 91 72.18812870 .00000004 00000-0 99999-4 0 6046
2 10684 63.8748 81.2251 0127271 200.5994 158.9256 2.00554531 81241

```
GPS-0002
1 10893U 78 47  A 91 70.19230400 -.00000022  00000-0  99999-4 0  3216
2 10893  64.2692 322.1367 0172388  23.9418 336.8898  2.00535284 94021
GOES 3
1 10953U 78062  A 91 70.20053906  .00000093  00000-0  99999-4 0   502
2 10953   7.5842  63.1748 0004178 107.9813 252.2031  1.00273311  7598
SeaSat 1
1 10967U 78064  A 91 69.22681695  .00001942  00000-0  70594-3 0  4788
2 10967 108.0298 149.5258 0004224 239.4262 120.6456 14.36290369664640
GPS-0003
1 11054U 78093  A 91 69.94051296 -.00000021  00000-0  99999-4 0  3558
2 11054  63.7707 318.3092 0063393 116.5997 244.1093  2.00571717 91037
Nimbus 7
1 11080U 78098  A 91 72.27330663  .00000303  00000-0  30407-3 0  7363
2 11080  99.1729 335.8414 0009780  89.1865 271.0430 13.83516130625245
GPS-0004
1 11141U 78112  A 91 72.05824366  .00000004  00000-0  99999-4 0  1399
2 11141  63.8301  81.0896 0035248 112.8753 248.1001  2.00547655 89773
GPS-0005
1 11690U 80 11  A 91 64.21808439  .00000006  00000-0  99999-4 0   987
2 11690  64.3181  83.6112 0121864 203.1645 156.3248  2.00552846 95472
GPS-0006
1 11783U 80 32  A 91 71.99430747 -.00000021  00000-0  99999-4 0  3755
2 11783  63.5738 317.7353 0151100  56.6194 304.9689  2.00570715 79712
GOES 5
1 12472U 81049  A 91 72.11211948  .00000129  00000-0  99999-4 0   592
2 12472   4.1381  72.4591 0002750 276.9994  83.3018  1.00242184 34926
Cosmos 1383
1 13301U 82 66  A 91 73.53142679  .00000189  00000-0  20987-3 0  6889
2 13301  82.9309 102.6564 0028147 132.8046 227.5482 13.67890057434637
LandSat 4
1 13367U 82 72  A 91 73.95597063 -.00005299  00000-0 -11737-2 0  7034
2 13367  98.1258 135.6122 0003432  39.1834 320.9631 14.57080531460733
IRAS
1 13777U 83  4  A 91 72.07729697  .00000350  00000-0  26605-3 0  9086
2 13777  99.0196 269.5628 0013833   5.9361 354.1941 13.98904561 84534
Cosmos 1447
1 13916U 83 21  A 91 63.80866909  .00000310  00000-0  31599-3 0  7845
2 13916  82.9376 179.3559 0038025 131.5822 228.8616 13.74111593398464
TDRS 1
1 13969U 83 26  B 91 70.18308710  .00000129  00000-0  99999-4 0  2794
2 13969   5.1158  63.4828 0002344 307.6557  52.4971  1.00279982  2027
GOES 6
1 14050U 83 41  A 91 73.11080018  .00000117  00000-0  99999-4 0  3807
2 14050   2.9062  74.9188 0004735 300.2525  60.1916  1.00272959   844
OSCAR 10
1 14129U 83 58  B 91 63.34532753 -.00000104  00000-0  99999-4 0  6398
2 14129  25.8586 157.5216 5994082 222.1074  71.7788  2.05883481 30094
```

```
GPS-0008
1 14189U 83 72  A 91 69.43290841  .00000003  00000-0  99999-4 0  9025
2 14189  63.5029  79.5234 0144230 224.5863 134.2890  2.00568707 56108
LandSat 5
1 14780U 84 21  A 91 73.92121203  .00000427  00000-0  99999-4 0  5476
2 14780  98.2475 135.4168 0000915  39.9373 320.1928 14.57093141374143
UoSat 2
1 14781U 84 21  B 91 71.15127494  .00003826  00000-0  69935-3 0  9351
2 14781  97.9110 119.5170 0013139 114.3366 245.9203 14.66402910375222
GPS-0009
1 15039U 84 59  A 91 70.10442724  .00000002  00000-0  99999-4 0  1695
2 15039  63.2533  78.6187 0028386 227.2186 132.5878  2.00565719 49398
Cosmos 1574
1 15055U 84 62  A 91 67.44584720  .00000221  00000-0  22604-3 0   334
2 15055  82.9519 227.4798 0027564 311.2519  48.6267 13.73419840336349
GPS-0010
1 15271U 84 97  A 91 73.04089842 -.00000021  00000-0  99999-4 0   140
2 15271  63.0739 317.1204 0112433 331.6914  27.7783  2.00564197 46564
Cosmos 1602
1 15331U 84105  A 91 73.53133330  .00005653  00000-0  74575-3 0  4997
2 15331  82.5372 110.1137 0023541 162.6424 197.5597 14.79732950348045
NOAA 9
1 15427U 84123  A 91 73.88689080  .00000989  00000-0  55261-3 0  7136
2 15427  99.1733  85.1335 0014784 333.1612  26.8794 14.12876823322208
GPS-0011
1 16129U 85 93  A 91 69.76845257  .00000004  00000-0  99999-4 0  7321
2 16129  64.0208  79.8325 0122796 148.0093 212.7912  2.00564617 39701
Mir
1 16609U 86 17  A 91 73.81143428  .00030040  00000-0  32940-3 0  3166
2 16609  51.6087  45.9606 0017261  58.6490 301.5239 15.62798001290384
SPOT 1
1 16613U 86 19  A 91 73.71223932  .00001097  00000-0  53318-3 0  2601
2 16613  98.7027 149.2557 0001779 108.3511 251.7842 14.20007720102328
Cosmos 1766
1 16881U 86 55  A 91 73.68877891  .00000753  00000-0  99999-4 0  3552
2 16881  82.5209 168.6907 0018778 179.1876 180.9539 14.79115006249115
EGP
1 16908U 86 61  A 91 65.30868719 -.00000025  00000-0  99999-4 0  3416
2 16908  50.0096 170.1671 0011509 142.4602 217.7038 12.44392919207498
NOAA 10
1 16969U 86 73  A 91 73.90651808  .00001088  00000-0  49026-3 0  5573
2 16969  98.5725 100.4801 0013162 197.6458 162.4270 14.23969219233136
MOS-1
1 17527U 87 18  A 91 73.20593069  .00000763  00000-0  59327-3 0  7656
2 17527  99.0713 146.8949 0001019 115.6286 244.4992 13.94871143206906
GOES 7
1 17561U 87 22  A 91 72.82420799 -.00000045  00000-0  99999-4 0  7378
2 17561   0.0280 270.4269 0005033 103.0680 346.4877  1.00271944  8275
```

Kvant-1
1 17845U 87 30 A 91 73.87540765 .00048166 00000-0 52346-3 0 5001
2 17845 51.6024 45.6375 0016308 59.8675 300.4634 15.62815222225129
DMSP B5D2-3
1 18123U 87 53 A 91 73.95866298 .00001273 00000-0 68354-3 0 8745
2 18123 98.8143 265.9350 0014328 336.6033 23.4487 14.14410235192670
RS-10/11
1 18129U 87 54 A 91 73.92234592 -.00000045 00000-0 -56260-4 0 5531
2 18129 82.9271 128.5220 0013535 88.9635 271.3121 13.72156828186665
Meteor 2-16
1 18312U 87 68 A 91 74.05946322 .00000173 00000-0 14597-3 0 6128
2 18312 82.5511 75.6016 0011055 207.7712 152.2857 13.83744960180444
Meteor 2-17
1 18820U 88 5 A 91 73.64899932 .00000497 00000-0 43478-3 0 4613
2 18820 82.5460 135.4663 0015355 288.6599 71.2891 13.84453181157605
DMSP B5D2-4
1 18822U 88 6 A 91 73.96256266 .00001798 00000-0 83306-3 0 8105
2 18822 98.6098 311.8922 0006182 198.8617 161.2332 14.21837902161290
Glonass 34
1 19163U 88 43 A 91 73.43957887 .00000020 00000-0 99999-4 0 1908
2 19163 64.9186 150.1226 0006962 194.6853 165.3540 2.13102578 21907
Glonass 36
1 19165U 88 43 C 91 73.49648391 .00000020 00000-0 99999-4 0 1880
2 19165 64.9006 150.1212 0004211 328.3533 31.6858 2.13102745 21904
AO-13
1 19216U 88 51 B 91 53.11378759 -.00000126 00000-0 99999-4 0 2396
2 19216 56.8252 109.0878 7128019 247.8593 26.4295 2.09703733 20642
OKEAN 1
1 19274U 88 56 A 91 74.00772141 .00003397 00000-0 46243-3 0   651
2 19274 82.5136 267.1303 0021165 322.8577 37.1184 14.78344976144917
Meteor 3-2
1 19336U 88 64 A 91 74.04387406 .00000074 00000-0 17626-3 0 7120
2 19336 82.5416 85.8137 0017958   1.7769 358.3399 13.16915916126609
Glonass 39
1 19503U 88 85 C 91 71.16993089 -.00000056 00000-0 -94624 2 0 1104
2 19503 65.4424 29.5517 0004954 206.0156 153.9549 2.13101967 19349
NOAA 11
1 19531U 88 89 A 91 73.54430414 .00001281 00000-0 72066-3 0 4695
2 19531 99.0174 27.6935 0011161 242.2837 117.7184 14.11983283127112
TDRS 2
1 19548U 88 91 B 91 58.04983405 .00000113 00000-0 99999-4 0 2334
2 19548   0.7490 80.7494 0001523 230.1933 49.0067 1.00274517 7474
Glonass 40
1 19749U 89 1 A 91 73.08829399 .00000020 00000-0 99999-4 0 8941
2 19749 64.8602 149.7973 0006448 273.8822 86.1052 2.13101863 16916
Glonass 41
1 19750U 89 1 B 91 74.08490548 .00000020 00000-0 99999-4 0 9495
2 19750 64.8787 149.7846 0006545 251.1336 108.8523 2.13102404 16937

```
GPS BII-01
1 19802U 89 13  A 91 58.17527061  .00000017  00000-0  99999-4 0  2319
2 19802  55.0455 187.3559 0050904 163.2354 196.8890  2.00558153 14865
Akebono
1 19822U 89 16  A 91 73.57156017  .00030509  00000-0  17847-2 0  9602
2 19822  75.0739 104.8924 4108456  47.1606 340.8460  7.24624201 19222
Meteor 2-18
1 19851U 89 18  A 91 73.83642232  .00000465  00000-0  40708-3 0  4138
2 19851  82.5227  12.8078 0014374 333.1803  26.8626 13.84079479103004
MOP-1
1 19876U 89 20  B 91 56.56889792  .00000024  00000-0  99999-4 0  1813
2 19876   0.2783  49.6603 0001388 297.3075  12.9938  1.00267628  3203
TDRS 3
1 19883U 89 21  B 91 69.64720867 -.00000236  00000-0  99999-4 0  2325
2 19883   0.7888  79.6158 0002604 285.7857 354.5796  1.00264695 77569
GPS BII-02
1 20061U 89 44  A 91 58.00437706 -.00000034  00000-0  99999-4 0  2332
2 20061  54.8640   5.4895 0089842 183.4176 176.5173  2.00566400 12602
Nadezhda 1
1 20103U 89 50  A 91 67.51316421  .00000226  00000-0  22966-3 0  3075
2 20103  82.9573  90.1691 0038721  24.6975 335.6017 13.73655031 84003
GPS BII-03
1 20185U 89 64  A 91 57.34599602  .00000016  00000-0  99999-4 0  1766
2 20185  54.8906 188.1900 0021289 164.8064 195.2144  2.00568043 11161
GPS BII-04
1 20302U 89 85  A 91 41.91577973 -.00000024  00000-0  99999-4 0  1785
2 20302  54.4598 307.3315 0032510 329.9999  29.8633  2.00556091  9656
Meteor 3-3
1 20305U 89 86  A 91 73.90088985  .00000043  00000-0  99999-4 0  3246
2 20305  82.5487  27.0543 0016859  16.2940 343.8731 13.15941549 66551
COBE
1 20322U 89 89  A 91 72.01642602  .00000833  00000-0  55913-3 0  2581
2 20322  99.0213  84.7873 0008282 346.0454  14.0473 14.03006221 67188
Kvant-2
1 20335U 89 93  A 91 73.68356427  .00048171  00000-0  52346-3 0  6017
2 20335  51.6074  46.6069 0017077  57.7366 302.5494 15.62801177 74023
GPS BII-05
1 20361U 89 97  A 91 62.37035542  .00000013  00000-0  99999-4 0  1289
2 20361  55.0281 130.0815 0063000  59.5436 301.1453  2.00584953  8926
SPOT 2
1 20436U 90  5  A 91 72.69092612 -.00001487  00000-0 -69024-3 0  4961
2 20436  98.6955 148.3295 0001338  51.9717 308.1517 14.20040602 58991
UO-14
1 20437U 90  5  B 91 70.20133924  .00001233  00000-0  50361-3 0  3149
2 20437  98.6771 150.2384 0011653  90.6078 269.6428 14.28953664 58991
UO-15
1 20438U 90  5  C 91 65.23854784  .00000807  00000-0  33759-3 0  1978
2 20438  98.6813 145.2249 0010415 104.9447 255.2888 14.28581408 58272
```

```
PACSAT
1 20439U 90  5  D 91 72.69307529  .00001183  00000-0  48258-3 0  2066
2 20439  98.6779 152.9802 0012709  86.6528 273.6104 14.29052696 59356
DO-17
1 20440U 90  5  E 91 73.51885409  .00001287  00000-0  52323-3 0  2061
2 20440  98.6778 153.8367 0012809  84.5951 275.6670 14.29125572 59478
WO-18
1 20441U 90  5  F 91 72.72210085  .00001095  00000-0  44665-3 0  2052
2 20441  98.6749 153.0876 0013279  86.9744 273.1857 14.29185086 59366
LO-19
1 20442U 90  5  G 91 74.10176091  .00001154  00000-0  46967-3 0  2069
2 20442  98.6778 154.5095 0013697  82.9535 277.3203 14.29264474 59568
GPS BII-06
1 20452U 90  8  A 91 67.75229359  .00000004  00000-0  99999-4 0  1530
2 20452  54.3982 245.2075 0046174  52.4825 307.8626  2.00554625  8154
MOS-1B
1 20478U 90 13  A 91 73.16782136 -.00000004  00000-0  99999-5 0  5168
2 20478  99.1566 146.8290 0000825 124.0208 236.1164 13.94857256 55778
DEBUT
1 20479U 90 13  B 91 69.51316501  .00000031  00000-0  97835-4 0  1893
2 20479  99.0193  70.4245 0540988 165.0177 196.7681 12.83171893 50903
FO-20
1 20480U 90 13  C 91 62.96810396  .00000091  00000-0  25399-3 0  1811
2 20480  99.0222  65.1317 0540411 179.9283 180.1985 12.83174409 50069
MOS-1B R/B
1 20491U 90 13  D 91 72.54179282  .00000479  00000-0  94723-3 0  2065
2 20491  99.0183  84.0730 0471389 119.8214 245.0600 13.02815869 51475
LACE
1 20496U 90 15  A 91 73.57519412  .00021184  00000-0  11166-2 0  4594
2 20496  43.0936 273.0252 0019491 252.5812 107.3044 15.15052170 59547
RME
1 20497U 90 15  B 91 73.61726283  .00031853  00000-0  66357-3 0  4931
2 20497  43.1033 184.3056 0020805 325.3875  34.5642 15.44774370 60522
Nadezhda 2
1 20508U 90 17  A 91 67.35175177  .00000236  00000-0  24098-3 0  2621
2 20508  82.9511 225.1079 0044146 332.8026  27.0859 13.73276862 51262
OKEAN 2
1 20510U 90 18  A 91 74.04486414  .00004819  00000-0  72173-3 0  4325
2 20510  82.5245 208.0716 0020802 112.6092 247.7333 14.74359254 55961
INTELSAT-6
1 20523U 90 21  A 91 62.01325021  .00008107  00000-0  57046-3 0  4497
2 20523  28.3339   6.7184 0014890  76.4736 283.7514 15.03209790 53423
GPS BII-07
1 20533U 90 25  A 91 73.14823908 -.00000034  00000-0  99999-4 0  1342
2 20533  55.1879   5.0420 0034144  96.1088 264.2844  2.00566745  7034
PegSat
1 20546U 90 28  A 91 73.33714870  .00024647  00000-0  13180-2 0  4598
2 20546  94.1441 359.3876 0140444  77.3713 284.3284 15.06810521 50665
```

HST
1 20580U   91 73.07891131 .00008617 00000-0 93237-3 0 4034
2 20580 28.4694 330.1449 0005781 40.5321 319.5710 14.86679396 48142
Glonass 44
1 20619U 90 45 A 91 73.45847197 -.00000018 00000-0 99999-5 0 4031
2 20619 65.0436 29.6743 0022927 218.9456 140.8762 2.13103235 6387
Glonass 45
1 20620U 90 45 B 91 74.04560624 -.00000018 00000-0 99999-4 0 4158
2 20620 65.0437 29.6523 0006830 17.4645 342.5643 2.13103385 6401
Glonass 46
1 20621U 90 45 C 91 73.63513549 -.00000018 00000-0 99999-4 0 3549
2 20621 65.0579 29.6875 0013006 211.8877 148.0188 2.13102339 6398
Kristall
1 20635U 90 48 A 91 73.55569435 .00048157 00000-0 52346-3 0 4015
2 20635 51.6052 47.2585 0017633 54.9097 305.4944 15.62784066 44880
ROSAT
1 20638U 90 49 A 91 72.61802047 .00008071 00000-0 66156-3 0 2095
2 20638 52.9866 293.4166 0015761 69.4747 290.7891 14.99983214 42681
Meteor 2-19
1 20670U 90 57 A 91 73.99417667 .00000192 00000-0 16418-3 0 1598
2 20670 82.5435 73.7065 0014250 249.9417 110.0206 13.83922494 35979
CRRES
1 20712U 90 65 A 91 73.75626025 .00003069 00000-0 30921-2 0 1666
2 20712 18.0544 311.4959 7120285 17.7602 357.9362 2.44067314 5670
GPS BII-08
1 20724U 90 68 A 91 55.54435681 .00000016 00000-0 99999-4 0   845
2 20724 54.6996 186.1883 0096447 122.6748 238.2165 2.00563932 4103
Feng Yun1-2
1 20788U 90 81 A 91 72.24506318 .00000648 00000-0 45478-3 0 1060
2 20788 98.9489 107.7205 0016389 84.9413 275.3618 14.01071252 26779
Meteor 2-20
1 20826U 90 86 A 91 73.82581576 .00000401 00000-0 35503-3 0 1124
2 20826 82.5217 12.9235 0013355 138.3298 221.8903 13.83290337 23164
GPS BII-09
1 20830U 90 88 A 91 53.08841352 .00000013 00000-0 99999-4 0   856
2 20830 54.9030 128.6742 0075781 116.1874 244.6526 2.00566684 3135
GPS BII-10
1 20959U 90103 A 91 69.45062479 .00000016 00000-0 99999-4 0   256
2 20959 54.9411 187.2185 0048027 239.0411 120.6350 2.00559655 2055
DMSP B5D2-5
1 20978U 90105 A 91 73.94809136 .00002217 00000-0 83384-3 0   858
2 20978 98.8505 109.1277 0082191 55.6432 305.2491 14.30690807 14777
Soyuz TM-11
1 20981U 90107 A 91 73.29989103 .00048106 00000-0 52346-3 0 1060
2 20981 51.6156 48.5511 0015342 50.6856 309.6310 15.62802451 15951
Glonass 47
1 21006U 90110 A 91 73.20505977 .00000020 00000-0 99999-4 0   919
2 21006 64.8396 149.2107 0061563 186.0905 173.8961 2.13102196 2069

```
Glonass 48
1 21007U 90110  B 91 73.38154621  .00000020  00000-0  99999-4 0  1017
2 21007  64.8563 149.2308 0039481 179.9250 180.1440  2.13100324  2061
Glonass 49
1 21008U 90110  C 91 73.73360463  .00000020  00000-0  99999-4 0   862
2 21008  64.8375 149.2026 0009879 292.6737  67.2751  2.13100328  2076
Progress M6
1 21053U 91  2  A 91 73.23596041  .00048146  00000-0  52346-3 0   653
2 21053  51.6080  48.8685 0016996  57.1760 303.1945 15.62791276  9188
INFORMTR-1
1 21087U          91 73.24086400  .00000167  00000-0  16512-3 0   221
2 21087  82.9442 303.9861 0035526 161.3366 198.9100 13.74351124  5987
Cosmos 2123
1 21089U 91  7  A 91 67.77553240  .00000253  00000-0  25788-3 0   245
2 21089  82.9284 178.5246 0028936 196.1480 163.8822 13.73867322  4359
Cosmos 2125
1 21100U 91  9  A 91 73.67228389  .00000009  00000-0  99999-4 0    87
2 21100  74.0307 150.3343 0009817 115.8372 244.3728 12.49763138  3825
Cosmos 2126
1 21101U 90  9  B 91 73.60689456  .00000008  00000-0  99999-4 0   108
2 21101  74.0312 150.6797 0019567 199.3324 160.7031 12.45873728  3781
Cosmos 2127
1 21102U 91  9  C 91 73.63567460  .00000008  00000-0  99999-4 0   114
2 21102  74.0306 150.5107 0007212 194.7983 165.2895 12.47980049  3799
Cosmos 2128
1 21103U 91  9  D 91 73.62472915  .00000009  00000-0  99999-4 0    92
2 21103  74.0310 150.2139 0014282  62.1479 298.1058 12.51714363  3808
Cosmos 2129
1 21104U 91  9  E 91 73.66044936  .00000010  00000-0  99999-4 0   109
2 21104  74.0313 150.0697 0024450  61.0504 299.3036 12.53530533  3811
Cosmos 2130
1 21105U 91  9  F 91 73.65674249  .00000010  00000-0  99999-4 0    60
2 21105  74.0283 149.7848 0043152  59.0584 301.4734 12.56965541  3821
Cosmos 2131
1 21106U 91  9  G 91 73.69318066  .00000011  00000-0  99999-4 0    91
2 21106  74.0302 149.6004 0051268  49.0576 311.4942 12.58742136  3832
Cosmos 2132
1 21107U 91  9  H 91 73.61783699  .00000010  00000-0  99999-4 0    79
2 21107  74.0311 149.9531 0033581  57.0344 303.3974 12.55285487  3823
1991 009J
1 21108U 91  9  J 91 73.44365198 -.00000391  00000-0 -36615-2 0   350
2 21108  74.0743 152.8507 0132951 236.6036 122.1640 12.19261889  3707
1991 009K
1 21109U 91  9  K 91 73.65966661  .00000005  00000-0  99999-4 0   239
2 21109  74.0309 152.7497 0176171 230.2705 128.2823 12.17467056  3733
1991 009L
1 21110U 91  9  L 91 73.63361754  .00000004  00000-0  99999-4 0   252
2 21110  74.0548 153.5678 0238884 233.3564 124.5578 12.05347250  3698
```

```
Cosmos 2133
1 21111U 91 10  A 91 73.08344138 -.00000115  00000-0  99999-4 0   244
2 21111   2.2611 282.3344 0006007 279.0390  80.3781  1.00272154   299
1991 010D
1 21114U 91 10  D 91 73.62974125  .00003736  00000-0  19049-2 0   115
2 21114  47.2802 273.3221 7278065   7.3770 359.2921  2.26881756   638
1991 009M
1 21115U 91  9  M 91 72.22943710  .00000004  00000-0  99999-4 0   114
2 21115  74.0301 154.6598 0186415 225.3010 133.3064 12.15405001  3566
Cosmos 2134
1 21116U 91 11  A 91 73.77428309  .00348927  98214-5  25961-3 0   587
2 21116  64.7229 220.3753 0037340 144.7352 215.6305 16.13446259  4421
Molniya1-80
1 21118U 91 12  A 91 72.98837978  .00000053  00000-0  14241-2 0   223
2 21118  62.8086 320.6139 7434683 280.3150  10.8532  2.00582160   545
1991 012D
1 21121U 91 12  D 91 71.99231619  .00000578  00000-0  94014-3 0   349
2 21121  62.7482 320.9734 7394775 280.1517  11.2034  2.05503990   523
1991 010E
1 21122U 91 10  E 91 71.91730821  .00001724  00000-0  22000-2 0   146
2 21122  47.3209 273.9137 7257640   6.9187 359.3403  2.26375033   591
1991 010F
1 21129U 91 10  F 91 70.10733924 -.00000008  00000-0  99999-4 0   148
2 21129   2.3091 282.2232 0018040  40.4670 319.3191  1.00097284   184
Cosmos 2135
1 21130U 91 13  A 91 67.86692308  .00000107  00000-0  99999-4 0    95
2 21130  82.8241 248.7068 0065037 248.4483 110.9737 13.77538013  1471
1991 013B
1 21131U 91 13  B 91 67.85471756  .00000242  00000-0  22230-3 0    90
2 21131  82.8224 248.6957 0059357 244.3807 115.1333 13.79128579  1475
Raduga 27
1 21132U 91 14  A 91 72.85997763 -.00000316  00000-0  99999-4 0   178
2 21132   1.4853 250.7735 0001651 329.0298  29.6534  1.00256845   164
1991 014D
1 21135U 91 14  D 91 70.61845704 -.00000071  00000-0  99999-4 0    55
2 21135   1.5092 250.9003 0022240 344.7080  14.4054  1.03435574   141
ASTRA 1-B
1 21139U 91 15  A 91 72.55159752  .00000095  00000-0  99999-4 0    84
2 21139   0.2031 295.5024 0020082  36.5699  27.7978  1.01107135    22
MOP-2
1 21140U 91 15  B 91 73.39796657 -.00000049  00000-0  99999-4 0   136
2 21140   1.1859 295.9076 0067861  32.6212 326.6240  1.00583077    88
1991 015C
1 21141U 91 15  C 91 73.73370204  .00032436  00000-0  77486-2 0   141
2 21141   7.0422 324.5535 7306638 187.2726 148.1651  2.25358040   240
1991 015D
1 21142U 91 15  D 91 73.13342873  .00110955  00000-0  20652-1 0   119
2 21142   6.9969 324.0281 7278651 187.5867 149.1604  2.29393930   239
```

```
1991 016A
1 21143U 91 16  A 91 73.80820313  .00327876  12921-4  19831-3 0   250
2 21143  62.8495 314.0088 0036098 108.7876 251.5804 16.16301782  1308
1991 016B
1 21144U 91 16  B 91 73.17471747  .01714308  99853-5  12574-2 0   217
2 21144  62.8290 316.4411 0026452 117.8367 242.6098 16.14352692  1206
1991 016D
1 21146U 91 16  D 91 68.06199656  .16998994  42395-4  21588-2 0    42
2 21146  62.8027 336.6626 0040322 152.1013 212.1020 16.32546082   383
1991 018B
1 21150U 91 18  B 91 73.59083993  .00017539  00000-0  12917-2 0    60
2 21150  24.9654 289.8221 0530988 213.4298 143.1601 14.30337193   803
1991 018C
1 21151U 91 18  C 91 73.10362640  .00059200  00000-0  75036-2 0    92
2 21151  24.2144 326.6542 7339464 189.2262 143.2853  2.22645047   124
1991 019A
1 21152U 91 19  A 91 72.16195681  .00000006  00000-0  00000 0 0    50
2 21152  82.9280 130.0078 0040866 291.9369  66.1352 13.73299529    52
1991 019B
1 21153U 91 19  B 91 72.16195681  .00000006  00000-0  00000 0 0    17
2 21153  82.9234 130.0102 0032811 287.5263  72.2241 13.74794382    58
--
Dr TS Kelso                          Assistant Professor of Space Operations
tkelso@blackbird.afit.af.mil         Air Force Institute of Technology

------------------------------

Date: 14 Mar 91 14:58:11 GMT
From: hpfcso!hpfcdj!goris@hplabs.hpl.hp.com  (Andy Goris)
Subject: TH-77A hum in TX audio
To: info-hams@ucsd.edu

I have not noticed a problem with hum on my TH-77A.  My serial number is
20705334.  Can you tell me which resistor they said to change, and to what
value?  I would like to know this for future reference, should the problem
ever come up.

Thanks,
Andy Goris   AA0CM         goris@hpfclm.hp.com

------------------------------

Date: Fri, 15 Mar 91 09:40:02 EST
From: DECARLIS%MTUS5.BITNET@VM1.NoDak.EDU
To: Info-hams@UCSD.EDU

According to recent information here on Info-Hams, it looks like there
is a stong possibility for some good auroral backscatter propagation.
```

So everyone out there with 144 MHz CW equipment point those yagis north and listen for the next couple of days. Keeps tabs on WWV and be listening (and calling CQ) on 144.200 MHz in the evenings....I'll be there...

Looking for grid squares,

Dan Carlisle WK8L
EN57

WK8L@W8YY.#UPMI.MI.USA.NA
decarlis@mtus5.cts.mtu.edu

End of Info-Hams Digest
****